Alliance Partition Number in Graphs

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Let G be a graph with vertex set $V(G)$ and edge set $E(G)$. A defensive alliance in G is a subset S of $V(G)$ such that for every vertex $v \in S$, $|N[v] \cap S| \geq |(V(G) - N[v]) \cap S|$. A global defensive alliance is an alliance that is also a dominating set. We define the *alliance partition number, $\psi_a(G)$ (global alliance partition number, $\psi_g(G)$)*, to be the maximum number of sets in a partition of $V(G)$ such that each set is a defensive alliance (gloabal defensive alliance). In this paper, we give both general bounds and exact results for the alliance partition number and for the global alliance partition number, as well as connection between the two.

On Integer-Magic Spectra of Trees

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For any $h \in \mathbb{N}$, a graph $G = (V; E)$ is said to be h-magic if there exists a labeling $\ell : E(G) \to \mathbb{Z}_h - \{0\}$ such that the induced vertex set labeling $\ell^+ : V(G) \to \mathbb{Z}_h$ defined by

$$\ell^+(v) = \sum_{uv \in E(G)} \ell(u, v)$$

is a constant map. For a given graph G; the set of all $h \in \mathbb{Z}_+$ for which G is h-magic is called the integer-magic spectrum of G and is denoted by $IM(G)$. In this presentation, the integer-magic spectra of trees of diameter five and caterpillars will be discussed.